

USDA
NATURAL RESOURCES
CONSERVATION SERVICE

DELAWARE CONSERVATION
PRACTICE STANDARD

**ANIMAL MORTALITY
FACILITY**

CODE 316
(Reported by No.)

treatment or disposal must be considered as a component of a waste management system for livestock or poultry operations. It applies where on-farm carcass treatment and disposal are permitted by federal, state, and local laws, rules, and regulations. It also applies where a waste management system plan as described in the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) has been developed that accounts for the end use of the product from the mortality facility. This practice includes disposal of both normal and catastrophic animal mortality; however, it does not apply to catastrophic mortality resulting from disease.

CONSIDERATIONS

Major considerations in planning animal mortality management are:

- Available equipment at the operation.
- The management capabilities of the operator.
- The degree of pollution control required by state and local agencies.
- The economics of the available alternatives.
- The effect on neighbors.

Consideration should be given to prevailing wind direction and neighbors when siting animal mortality disposal facilities. A minimum of 900 feet should separate the facility from the nearest neighboring residence, and the facility should be 200 feet from a well, spring, or water course.

Runoff from composting of poultry mortality will be hindered if the bird carcasses are allowed to freeze.

Birds should be kept in a dry, non-freezing environment until added to the compost mix.

Facility sizes for composting large animal carcasses should reflect the longer compost periods required.

The following table lists factors that could be

DEFINITION

An on-farm facility for the treatment or disposal of livestock and poultry carcasses.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following purposes:

- Decrease non-point source pollution of surface and groundwater resources.
- Reduce the impact of odors that result from improperly handled animal mortality.
- Decrease the likelihood of the spread of disease or other pathogens that result from the interaction of animal mortality and predators.
- To provide contingencies for normal and catastrophic mortality events.

**CONDITIONS WHERE PRACTICE
APPLIES**

This practice applies to where animal carcass

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

used in determining minimum daily weight of animal mortality when sizing incinerators:

TYPE OF ANIMAL	DAILY LOSS FACTOR (pounds/day/animal)
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Chicken:

Broilers	0.0024
Laying Hens	0.0014
Breeding Hens	0.0019
Breeder, Male	0.0082

Turkeys:

Hen	0.0081
Tom, Light	0.0193
Tom, Feather Production	0.0286

Swine:

Suckling Pigs (per sow)	0.0400
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Poultry operations often experience higher rates of mortality as the birds reach maturity. The capacity of incinerators should be sized to insure the mortality of the large birds can be handled within the time frame allowed for incineration.

An alternative to prevent bloating of catastrophic mortality die off could include opening animal thoracic and abdominal cavities and viscera prior to placing required cover.

Incineration produces varying quantities of ash that will need to be properly handled.

Vegetative screens and topography can be used to shield the animal disposal facility from public view, and to minimize visual impact.

Operators should maintain a list of current phone numbers for state and local officials to aid in notification if disease-related catastrophic mortality occurs.

Safety devices such as fencing, warning signs, and freezer locks may be necessary at certain sites.

Bio-security concerns should be addressed in all aspects of planning installation, and operation

and maintenance of an Animal Mortality Facility.

This practice has the potential to affect National Register listed cultural resources or eligible (significant) cultural resources. These may include archeological, historic, or traditional cultural properties. Care should be taken to avoid adverse impacts to these resources. Follow NRCS state policy for considering cultural resources during planning.

CRITERIA

Criteria Applicable to All Purposes

The facility shall be designed to handle normal mortality and/or catastrophic mortality.

The planning and design of animal mortality facilities or processes must conform to all federal, state and local laws, rules and regulations. This includes provisions for closing and/or removing the facility where required.

All structural components integral to animal mortality management shall meet the structural loads and design criteria as described in NRCS conservation practice standard 313, Waste Storage Facility, unless otherwise designated.

Where an animal mortality facility can be damaged by surface runoff, the runoff shall be diverted away from the facility.

Location. The location shall minimize the impact of the facility on odor and other air quality issues affecting neighboring residences, as well as minimizing the impact of the facility on surface and groundwater resources. In addition, the facility, where practical, shall be generally down gradient from a spring or well.

The animal mortality facility shall be located outside the 100-year floodplain; however, if site restrictions require location within a floodplain, they shall be protected from inundation or damage.

The location of the animal mortality facility shall be consistent with the overall site plan for the livestock or poultry operation.

Seepage Control. Where seepage from mortality facilities will create a potential water quality problem and it is deemed necessary to reduce seepage, use AWMFH, Appendix 10D, for clay liner design criteria, or other acceptable liner technology.

Additional Criteria Applicable to Normal Mortality

The facility shall be located as close to the source of mortality as practical, considering bio-security issues and the need to keep the facility out of sight of the general public.

Composters. Design of facilities for composting animal mortality shall conform to conservation practice standard 317, Composting Facility, or the guidance in National Engineering Handbook Part 637, Chapter 2 - Composting (NEH 637.0211, Dead Animal Composting).

Freezers. Freezer units shall be of the chest type with a construction compatible with the mechanism to be used to empty the freezer. Provisions for protecting the freezer unit from precipitation and direct sun shall be made as deemed appropriate.

The freezer unit design, construction, power source, and unit installation shall be in accordance with manufacturer's recommendations. Freezers shall be constructed of durable material with a life expectancy compatible with other aspects of the waste management system. The freezer container shall be leakproof to minimize odor and leachate pollution.

Where needed, the freezer will be placed on a pad of suitable strength to withstand loads imposed with vehicular traffic consistent with equipment used to load or remove the box or tray.

Temperature. The freezers shall be self-contained units designed to freeze animal carcasses before decomposition occurs. For best results, the temperature of the carcasses shall be maintained between 22° and 26°F.

Capacity. Freezer units shall be sized to accommodate the normal maximum volume of mortality to be expected in the interval between

emptying. Volume calculations shall include the expected mortality rate of the animal, the period of time between emptying where mortality is given on a per day basis, the average weight of the animal between emptying, and a conversion factor for weight to volume. For broiler operations use a weight to volume conversion of a minimum of 45 pounds per cubic foot. Capacity calculations shall be supported by a removal schedule supplied by an integrator or approved vendor.

Power Source. An alternative source of power, where available, shall be used to maintain the integrity of the freezing process during power outages. Where an alternative power source will not be available, the operation and maintenance plan shall contain contingencies for disposal of the poultry mortality.

Disposal Pit. Disposal pits shall not be used for animal mortality facilities.

Incinerators. Incinerators shall be dual burning Type 4 (human and animal remains) approved for use within the state. Design of facilities for incinerating animal mortality shall conform to conservation practice standard 769, Incinerator.

Capacity. Minimum incinerator capacity shall be based on the average daily weight of animal mortality and the length of time the incinerator will be operated each day.

Location. The incinerator shall be located a minimum of 20 feet from any structure. The incinerator shall be placed on a concrete pad with the fuel source as distant as practical. If the incinerator is covered with a roof, at least six inches are required between the incinerator chimney and any combustible roof parts.

Additional Criteria Applicable to Catastrophic Mortality

General. Processes addressed by this standard shall be limited to composting. Catastrophic mortality shall be collected as soon as practical and moved away from the production facility.

Location. The facility shall be located as far away from neighboring dwellings and the poultry or livestock operation as site conditions permit. Locate on sites with restricted

percolation and a minimum of two feet between the bottom of the facility and the seasonal high water table unless special design features are incorporated that address seepage rates and non-encroachment of contaminants into the water table. Use AWMFH Appendix 10D for selection of sites where seepage will be restricted with normal construction techniques.

Burial Pit. Burial pits shall not be used for animal mortality facilities.

Composting. Catastrophic mortality composting shall be in either passive piles or windrows as described in National Engineering Handbook Part 637, Chapter 2 - Composting (NEH 637.0210 and NEH 637.0211).

Composting mortality shall be protected from precipitation as necessary, or provisions made for collecting contaminated runoff. Static piles or windrows covered with sawdust, finished compost, or other benign material will not need further protection.

SPECIFICATIONS

Plans and specifications for animal mortality facility shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail to ensure successful implementation of this practice. Documentation shall be in accordance with the section "Supporting Data and Documentation" in this standard.

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan applicable to this practice that includes, but is not limited to, the items listed below will be developed with the operator, and will become a part of the overall waste management system plan. The requirements in the individual operation and maintenance plan shall be consistent with the practice purposes, intended life, and design criteria. Safety considerations shall be prominently displayed in the plan.

Normal Mortality. Animal mortality facilities will normally be operated or used on a daily basis. At each operation or use, the facility shall be inspected to note any maintenance needs or indicators of operation problems.

Catastrophic Mortality. Possible locations for catastrophic animal mortality facilities shall be located during the planning process to be operated as needed.

Where composting is used for catastrophic mortality disposal, the operation and maintenance plan shall identify the most likely compost medium, possible compost recipes, operational information, and equipment that will need to be readily available.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

1. Location the animal mortality facility on the conservation map.
2. Assistance notes. The notes shall include dates of site visits, name or initials of the person who made the visit, specifics as to alternatives discussed, decisions made, and by whom.

Field Data and Survey Notes

The following is a list of the minimum data needed:

1. Description of the objectives of the practice, including the desired functions which the animal mortality facility is expected to provide.
2. Soils investigation logs and notes, as appropriate for site conditions and the proposed design.
3. Topographic survey of the site, as appropriate for site conditions and the proposed design.

Design Data

Record on appropriate engineering paper. For guidance on the preparation of engineering plans see Chapter 5 of the Engineering Field Handbook - Part 650. The following is a list of the minimum required design data:

1. Soil Survey map with the site identified.

2. Computations establishing the design capacity of the animal mortality facility.
3. Details of grading/drainage plan as needed.
4. A set of plans and specifications for the animal mortality facility, as appropriate.

Construction Check Data/As-Built Plans

Check notes recorded during and after completion of construction showing as-built conditions of the practice.

Red line the construction plans to indicate the construction's conformance to the design.

Sign and date check notes and plans by someone with appropriate approval authority. Include statement that practice meets or exceeds plans and NRCS practice standards.

REFERENCES

1. USDA, Natural Resources Conservation Service, National Engineering Handbook (NEH), Part 637 Environmental Engineering, Chapter 2, "Composting".
2. USDA, Natural Resources Conservation Service, National Engineering Handbook (NEH), Part 651 Agricultural Waste Management Field Handbook (AWMFH), Chapter 10, "Component Design".
3. Rynk, R. (Ed.) (1992) On-Farm Composting Handbook. NRAES-54. Ithaca, NY: Northeast Regional Agricultural Engineering Service.
4. Dougherty, M. (Ed.) (1999) Field Guide to On-Farm Composting. NRAES-114. Ithaca, NY: Northeast Regional Agricultural Engineering Service.